AGC/WSDOT Structures Team Minutes
2 March 2007

Members

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[1] WSDOT

Guest

Attendee:	Company	Phone	E-mail
Zepeda, Matt	Quigg Bros.	360-533-1530	mattz@quiggbros.com

The meeting started at 09:00.

1. Approval of January Meeting Minutes

No exceptions were taken with the meeting minutes.

Action Item: January meeting minutes are approved. No further action by team.

2. Update on Local Fly Ash Production

Mohammad Sheikhizadeh provided an update on local fly ash production from WSDOT, Headwaters Resources, American Concrete Pavement Association (ACPA), and Washington Aggregates and Concrete Association (WACA). Key points included:

- Centralia, WA steel plant is now producing Class C fly ash, due to use of coal from mines in Wyoming and Montana; this plant formerly produced Class F fly ash when it used coal from Centralia mines that are now closed
- Total volume of fly ash produced at Centralia plant is reduced by 40%

- A Headwaters Resources chemist tested the fly ash from Centralia and concluded that the high alkali content of the C fly ash is higher than the AASHTO limits of 1%
- Class C fly ash is not suitable for concrete permanently exposed to saltwater or soils containing sulfates
- Class C fly ash may not meet the 1000 Coulombs minimum permeability requirement for overlays, but is allowed for decks

Team discussion included the following points:

- WSDOT requests recommendations from team members for alternative supplementary cementitious materials (SCM) or other changes to concrete mixes
- Can fly ash be eliminated where not required for specific performance; fly ash was originally included as a way to use waste product from coal generated power plants mandated by the FHWA
- Mixes without fly ash need demonstrated permeability less than 1500 coulombs at 56 days
- Consider changes to gradation to get permeability without fly ash

Action Item: Team members are requested to recommend solutions for evaluation by WSDOT. Mo will continue to update team on local fly ash production and related WSDOT action.

3. I-90 Widening Constructability

Mo provided a handout with an overview of project details. At this time, the primary question to the team is: how will requirements for double-shifting impact project costs?

Key project details:

- I-90 Snoqualmie Pass East Keechelus Dam to Easton and includes approximately 10 miles from MP 59.9 to 70.3
- Project will expand the existing infrastructure from 2 to 3 lanes in each direction, as well as adding truck climbing lanes, straightening curves, stabilizing slopes, improving wildlife connectivity, adding hydrologic connectivity zones, replacing deteriorating pavement, and adding new variable message signs
- Preliminary project cost estimate is $476 million
- Roadway design speed is 75 mph with 27,000 ADT

Team discussion included the following points:

- Double-shifting may encounter environmental problems due to noise at night
- Personnel availability would be a tremendous impediment
- Team discussed possible inefficiencies with double-shifting leads due to required transition between shifts, however, Scott relayed that Atkinson sees minimal inefficiency at its Everett HOV design build job where double-shifting has been used effectively

- There are also inefficiencies with respect to remote proximity of the project, potentially tied work force, workers becoming more susceptible to injuries and mistakes, and adverse impact on workers family life
- Concern about availability of WSDOT staff, such as HQ Construction, for night shift construction issues requiring elevation from the project office
- Personnel would likely work 10 hr shifts to get 8-9 productive hours
- Reduced impact to the public by using off-peak night hours to do lane shifts
- Concern about meeting DBE requirements
- Team believes A+B Bidding may be appropriate; A+B is a cost-plus-time bidding procedure that rewards a Contractor for completing a contract as quickly as possible
- Recommendation to make double-shifting available as an option to the Contractor
- Nighttime slope stabilization work is not preferred
- No schedule recovery will be possible if contractor falls behind schedule

Action Item: Mo will request the I-90 project team bring this back to the team when the preliminary design is more fully developed. No further action by team at this time.

4. Location of Finishing Machine Supports for Staged Constructed Decks

Mo explained WSDOT concern with supporting self-propelled deck finishing machines, such as Bidwell, with one rail on an existing structure and the other end rail on the new structure and provided a handout photograph to illustrate the case.

Team discussion included the following points:

- Girder camber increases over stages, however, this is addressed by design and temporary strands
- WSDOT prefers support rails be wholly supported on new structure; team prefers this be included in plans via requirement in the WSDOT Bridge Design Manual LRFD M23-50.01 (BDM) to encourage consistency with other agencies that use the BDM
- This issue is considered worse when the existing bridge width (stage 1) is greater than the new section (stage 2)
- Improved support system when the finishing machine support is placed in the closure on top of a girder flange
- Overhang bracket supports for the finishing machine within closures are problematic
- Address this requirement on the staged construction plans and Bridge Design Manual

- **Action Item:** Mo will discuss team feedback with Bridge Design Office and report conclusions back to team.

5. Revision to Standard Wall Joint Spacing

Mo and Jugesh Kapur introduced Bridge Design Office discussion to increase expansion joint spacing for standard plans walls from 24ft to 36ft and requested team feedback on this proposed change. Standard Plan D-1a Reinforced Concrete Retaining Wall Type 1 and Type 1 SW were provided as illustration.

Team discussion included the following points:

- Forming lengths are preferable in 8 ft increments
- Jugesh queried team on length increases to 40ft or 48ft; responses indicated longer sections cut cost by decreasing quantity of formed bulkheads
- Bridge designs will also include longer barriers to accommodate the new 54 kip vehicle impact load
- Team requested horizontal construction joints be added to tall vertical walls

Action Item: Jugesh will initiate changes to standard plans to increase the length between expansion joints and will report back to team with the final lengths and the date of issue for construction.

6. Electronic Contracts

Jesse Beaver requested team opinion on need for availability of contracts in electronic forms other than the Builder's Exchange, such as pdf. The team was in favor of alternate contract formats.

Action Item: Jesse will investigate options for posting pdf versions of awarded contracts for Contractor use and inform the team of status.

7. Lighting in Construction Zones

As information sharing, Jesse presented a new option for construction zone lighting called PowerMoon. This range of products, developed in Germany, uses illuminated balloons that hover over the site and provide a bright but diffused light similar to a bright moon. http://www.antidazzlelighting.co.uk/

Action Item: Jesse will email the product information to team members. No further action by team.

8. Exploring Topics for Future Team Discussions

At the previous meeting, Mo requested team members brainstorm topics for action by this team, with the following guiding principles.

MISSION

Deliver quality, cost-effective transportation improvements through a working partnership of contractors and the Washington State Department of Transportation.

OBJECTIVES

To continuously improve:

- open communication and cooperation within the partnership.
- the constructed product.
- the processes of design, contract administration and construction.

SCOPE

Address structural specifications including structural steel, concrete and foundations.

Team members suggested the following topics and expressed no preference for the order in which they be addressed:

#	Topic
1	Why does temporary bridge rail meet 54 kip load
2	How do we crash test a temporary detour bridge
3	How can single-sided wall forms be eliminated from soil-nail, hilfiker, or other
4	Joints for architectural formliners
5	Finish patterns for architectural formliners
6	Concrete finish classes and pigmented sealer
7	Deck cure times versus strength
8	Deck overhang with tapered soffits
9	Use of stay-in-place deck forms
10	Temporary bulkheads in deck expanded metal in other locations
11	Additional structural precast elements
12	Rebar coatings
13	Simplify material tracking
14	Procedures for acceptance of materials such as concrete and rebar support dobies
15	Lack of tolerances on structural walls
16	Force Account in contract time
17	Who owns float in schedule
18	Formwork release in less than 24 hours
19	Environmental requirements and work outside DOT right-of-way (consider making this a regular topic on the agenda)
20	Liability for environmental issues
21	Low sulfur diesel, biodiesel
22	Post-earthquake emergency preparedness
23	Standardized repair procedures
24	Rapid construction techniques; opportunity to shorten contract time
25	Preliminary plan constructability
26	Construction review during design phase
27	How does AGC Structures provide constructability feedback
28	Electrical and mechanical contracts

Members also suggested this team request topics from other AGC teams and from ADSC.

Action Item: Mo will include these topics on future agendas. Team members will continue to provide new topics.

9. WSDOT Funded Research

Mo presented a brief summary of several ongoing HQ Construction research projects including review of deck cracking, shaft tip grouting, and shaft quality testing.

Deck cracking:

- West Lake Sammamish bridge has bottom cover increased to 1-1/2" to allow 1" max nominal aggregate size or AASHTO #57 combined gradation; this is an increase from Class 4000D specification of ¾" max nominal
- Curing compound will be deleted from an Attalia bridge contract this spring
- Deck will be placed at night on the SR-20 I-5 to Fredonia project
- In future contracts, deck texturing will be by longitudinal diamond grooving after completion of deck cure
- WSDOT has $100k for research into mix designs to replace the current 4000D mix; this research will likely be conducted by professors at WSU and will take approximately 18 months to complete

Shaft tip grouting:

- Test project co-located with the SR-20 Fredonia to I-5 project
- Includes 2 ea 6ft dia test shafts, instrumented for vertical load capacity
- Use of self compacting concrete (SCC)
- One control and one with grouted tip

Shaft quality testing:

- Based on need to get better results than are available from cross-sonic log (CSL) testing, which does not indicate concrete quality outside reinforcement cage.
- WSDOT has been able to secure $100,000 research funding for researchers to develop a better Q/A testing for shafts

Jugesh presented a brief summary of several ongoing Bridge Design Office research projects including seismic retrofit of multi-column bents (non-circular columns and retrofit of selected columns) and rapid construction.

Action Item: Mo and Jugesh will continue to inform team of relevant ongoing and future research. No further action by team.

The meeting was adjourned at 11:45.

The next meetings are scheduled for **6 Apr 07** and **18 May 07**.